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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

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| Applicant | : | JORG HENLE |
| Confirmation No. | : | 2143 |
| Serial No. | : | 10/009,006 |
| Filed | : | December 3, 2001 |
| TC/A.U. | : | 3747 |
| Examiner | : | E. Solis |
| Docket No. | : | 01-702 |
| Customer No. | : | 34704 |

Mail Stop Appeal Brief/Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

APPEAL BRIEF UNDER 37 CFR 41.37

Sir:

This Appeal Brief is submitted following the Notice of Appeal which was filed on July 27, 2004. A request for 2 month extension of time accompanies this Appeal Brief. Pursuant to 37 CFR 41.37, the Brief on Appeal is set forth below:

***Real party in interest***

The real party in interest in this appeal is the Asssignee of record, specifically, Wittenstein Gmbh & Co. KG.

***Related appeals and interferences***

There are no known related appeals or interferences.

***Status of claims***

The application contains claims 1-18 of which claim 4 was previously canceled and claims 1-3 and 5-18 stand rejected. The rejection is appealed as to all of claims 1-3 and 5-18. A copy

of the claims involved in this appeal is set forth in the attached appendix.

***Status of amendments***

Although there was a Request for Reconsideration filed after final rejection, it contained no amendment to the application and so, there are no un-entered amendments.

***Summary of claimed subject matter***

The invention, and claimed subject matter, relates to a control arrangement for engines, and includes a number of aspects which are beneficial including the configuration of the spindle which serves to ensure against self-locking (specification page 2, lines 14-20 for example), and a force sensor which serves to switch on a regulating device upon sensing a force applied to the gas lever (page 4, lines 6-12, for example).

Independent claims 1, 15 and 16 all include this force sensor. The force sensor 13 is particularly advantageous because it is operative to engage a regulating motor, and thereby assist in movement of the gas lever, upon sensing ***force*** applied to the gas lever. As set forth in the specification on page 4, lines 14-16, this prevents the pilot of the aircraft from having to set the spindle 2 in rotation manually by his own force under any circumstances. To the extent that the force sensor is interpreted under 35 USC 112, sixth paragraph, the

function provided by this language in the claim is performed by force sensor 13 as positioned relative to gas lever 6 and guide bush 5 on spindle 2, as well as communication of the sensor with control 14, all as shown in Figure 1 especially, and also in Figures 2-5.

Another feature of the present invention, set forth in independent claims 1 and 18, relates to the spindle having a trapezoidal configuration to help ensure against self-locking as described in the specification on page 5, lines 15-21.

***Grounds of rejection to be reviewed on appeal***

The first ground of rejection to be reviewed on appeal is the Examiner's rejection of claims 15-17 as anticipated by GB 2,114,717 to Hill et al. (hereafter "Hill").

The second ground of rejection to be reviewed on appeal is the Examiner's rejection of claims 1-3, 5-14 and 18 as obvious based upon Hill and US Patent Number 5,720,202 to Senjo (hereafter "Senjo").

***Argument***

1. First ground of rejection

Each of independent claims 15 and 16 sets forth the force sensor described above. The examiner asserts that this subject matter is taught by Hill. The examiner points to position sensor 33 of Hill as meeting the force sensor limitation of these claims. This holding is in error and is one reason why this rejection should be reversed.

The examiner asserts that the position sensor of Hill inherently acts as a force sensor. This is not true. There are many forces which could be applied to the sensor of Hill which would not result in movement, and which therefore would not be

sensed. Further, Hill does not disclose this structure as being a force sensor. The structure and function of Hill are taught as a position sensor, and this is drastically different than the subject matter of the present claims. In fact, the sensor set forth in Hill is precisely the type of sensor which would force the user to set components in corresponding rotation, manually, by manual force, in order to change an operating state of the controlled device. This is clearly contrary to the thrust of the present invention. See, for example, page 4 of the specification, lines 14-16.

The examiner asserts that "the force applied to move the drive mechanism in Hill can be derived from the position signal by taking a time derivative, as is well known". It is respectfully submitted that the Hill device could convey many different types of signals related to the position of the drive mechanism, without providing any signal whatsoever which could be used as the basis for mathematical analysis to determine what force was applied. Although the examiner asserts that such a calculation is well known, it is respectfully submitted that this takes for granted something which is not taught by Hill, that being whether the signal indeed contains sufficient information for this mathematical analysis. Furthermore, such an analysis is not even remotely suggested by Hill.

On page 4 of the final action, the examiner states that Hill's position sensor is effectively functioning as a force sensor. This is clearly not true since there are, as set forth above, many forces which would not be sensed at all by the sensor of Hill. Further, the examiner's assertion that force could be obtained using the position sensor by taking a second order time derivative of the position does not support anticipation of claims 15 and 16. Specifically, the structure

of Hill may or may not provide sufficient information to perform this analysis.

Hill simply does not teach a force sensor. A position sensor is very different from a force sensor, and this difference is a critical difference in connection with the subject matter of the present invention wherein a force sensor can and does provide the desired function, and a position sensor cannot.

In order to anticipate the subject matter of claims 15 and 16, Hill must disclose each and every feature of the claim. The position sensor of Hill is clearly not a force sensor. The fact that the examiner speculates that additional calculations and steps could be taken to cause the position sensor in some instances to operate as a force sensor does not make the teaching of the position sensor a force sensor. Thus, independent claims 15 and 16 are clearly not anticipated by Hill.

Based upon the foregoing, the rejection of independent claims 15 and 16 as anticipated by Hill is in error and should be reversed.

2. Second ground of rejection

This reasoning applies equally to the second ground of rejection as it relates to independent claim 1. Claim 1 also contains the force sensor discussed above. In addition to Hill, the Examiner has relied upon Senjo in this rejection. Senjo does not teach anything further in connection with the force sensor of the present invention. Thus, this rejection is equally in error as it relates to claim 1, and should be reversed.

In addition, the examiner relies upon Senjo as a secondary reference to teach the trapezoidal screw. Hill, it is

submitted, teaches away from the asserted combination of prior art with Senjo. Hill teaches at page 5, lines 111-116, that a ball-screw configuration is preferred. Senjo does not contain teaching sufficient to override the clear and direct teachings of Hill. Thus, a person of ordinary skill in the art would not combine Senjo with Hill in the face of this clear teaching away.

It is therefore submitted that the rejection of claim 18 is likewise in error and should be reversed.

3. Dependent claims

Dependent claims 2-3, 5-14, and 17 all depend directly or indirectly from one of the three independent claims discussed above and are patentable over the art of record based upon this dependence, and also based upon the specific content set forth therein.

Dependent claims 5 and 17 contain limitations drawn specifically to the positioning of the force sensor which allows sensing of force applied to gas lever 6 before guide bushing 5 or spindle 2 begins to move is allowed. It is this positioning of the sensor which advantageously allows for sensing of force as desired in accordance with the present application. The examiner has stated in the final action that this positioning would be a matter of obvious design choice. This holding is clearly in error, and reversal is respectfully requested. Nothing in the prior art discloses or suggests such positioning of the sensor, and this positioning clearly results in desirable function as set forth in the present specification by allowing the sensing of a force before any movement results from the force, thereby allowing assistance to be provided by the system.

4. Conclusion

Based upon the foregoing, it is clear that the rejections set forth in the final action are in error and should be reversed.

Enclosed herewith is a check in the amount of $385.00 to cover the fee for filing this appeal brief and the accompanying two (2) month extension request. If any additional fees are required in connection with this case, it is respectfully requested that they be charged to Deposit Account No. 02-0184.

Respectfully submitted,

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Date: November 29, 2004

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: "Mail Stop Appeal Brief/Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313" on November 29, 2004

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George A. Coury

***IN TRIPLICATE***

***Claims appendix***

1. An arrangement for controlling an engine , comprising:

at least one gas lever (6); and

a regulating device (9) for additional automatic driving of the gas lever (6), wherein movement of the gas lever (6) is transmitted permanently, directly or indirectly, to a displacement measuring system (3.1, 3.2), and wherein the gas lever (6) is seated so as to be mounted in a linearly movable manner via a guide bush (5) of a rotatable spindle (2), the spindle (2) being a non-self-locking trapezoidal screw spindle having a large pitch; and further comprising a force sensor operatively associated with the regulating device for switching on the regulating device upon sensing a force applied to the gas lever, whereby manual linear movement of the gas lever can be assisted.

2. An arrangement according to claim 1, wherein linear, manual movement of the gas lever (6) can be transmitted mechanically to the displacement measuring system (3.1, 3.2).

3. An arrangement according to claim 1, wherein at least one of linear, mechanical and automatic movement of the gas lever (6) is coupled mechanically to the movement of a displacement measuring system (3.1, 3.2).

4 (Cancelled)

5. The arrangement as claimed in claim 1, characterized in that the force sensor (13) is assigned to at least one of the gas lever (6) and the guide bush (5).

6. The arrangement as claimed in claim 1, characterized in that the spindle (2) is mounted so as to be rotatable in accordance with the movement of the guide bush (5) by a linear movement of the gas lever (6).

7. The arrangement as claimed in claim 1, characterized in that the displacement measuring system (3.1) is arranged on one end of the spindle (2).

8. The arrangement as claimed in claim 7, characterized in that the regulating device (9), as regulating motor having an associated displacement measuring system (3.2), acts directly or indirectly on the other end of the spindle (2).

9. The arrangement as claimed in claim 1, characterized in that a drive disk (4) is arranged on one end of the spindle (2).

10. The arrangement as claimed in claim 9, characterized in that a regulating motor (9) is connected to the drive disk (4).

11. The arrangement as claimed in claim 1, characterized in that the gas lever (6) is guided linearly in a guide slot (7)

of a housing (1) for the arrangement, this guide slot (7) being arranged approximately parallel to the spindle (2).

12. The arrangement as claimed in claim 1, characterized in that the gas lever (6) is connected directly or indirectly to a guide element (10) which runs approximately parallel to the spindle (2).

13. The arrangement as claimed in claim 1, characterized in that the displacement measuring system (3.1, 3.2), is a displacement transducer of an inductive, magnetic or optical type.

14. The arrangement as claimed in claim 1, characterized in that at least one of the displacement measuring system (3.1, 3.2), the force sensor (13) and the regulating device (9) is connected to a control (14) in order to assist a manual movement of the gas lever (6) by connecting the regulating device (9) to load, it being possible for the respective positions of the gas lever (6) to be transmitted via the displacement measuring systems (3.1, 3.2) to the engine in accordance with the operating state.

15. An arrangement for controlling an engine, comprising:

at least one gas lever (6); and

a regulating device (9) for additional automatic driving of the gas lever (6), wherein movement of the gas lever (6) is

transmitted permanently, directly or indirectly, to a displacement measuring system (3.1, 3.2), and wherein the gas lever (6) is seated so as to be mounted in a linearly movable manner via a guide bush (5) of a rotatable spindle (2), and further comprising a force sensor operatively associated with the regulating device for switching on the regulating device upon sensing a force applied to the gas lever, whereby manual linear movement of the gas lever can be assisted.

16. An arrangement for controlling an engine, comprising:

at least one gas lever (6); and

a regulating device (9) for additional automatic driving of the gas lever (6), wherein movement of the gas lever (6) is transmitted permanently, directly or indirectly, to a displacement measuring system (3.1, 3.2), and wherein the gas lever (6) is seated so as to be mounted in a linearly movable manner via a guide bush (5) of a rotatable spindle (2), and further comprising a force sensor operatively associated with the regulating device for switching on the regulating device upon sensing a force applied to the gas lever, whereby manual linear movement of the gas lever can be assisted, wherein the force sensor (13) is assigned to at least one of the gas lever (6) and the guide bush (5).

17. The arrangement of claim 16, wherein the force sensor is positioned between the gas lever and the guide bush for sensing force applied to the gas lever.

18. An arrangement for controlling an engine, comprising:

at least one gas lever (6); and

a regulating device (9) for additional automatic driving of the gas lever (6), wherein movement of the gas lever (6) is transmitted permanently, directly or indirectly, to a displacement measuring system (3.1, 3.2), and wherein the gas lever (6) is seated so as to be mounted in a linearly movable manner via a guide bush (5) of a rotatable spindle (2), the spindle (2) being a non-self-locking trapezoidal screw spindle having a large pitch.